1. Solve the equation for x and choose the interval that contains x (if it exists).

$$25 = \sqrt[7]{\frac{25}{e^{6x}}}$$

A. $x \in [-6.22, -1.22]$

B. $x \in [-0.54, 3.46]$

C. $x \in [-32.7, -27.7]$

D. There is no Real solution to the equation.

E. None of the above.

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2. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x-8} + 5$$

A. $(-\infty, a], a \in [3, 7]$

B. $(a, \infty), a \in [-8, -3]$

C. $[a, \infty), a \in [-8, -3]$

D. $(-\infty, a), a \in [3, 7]$

E. $(-\infty, \infty)$

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3. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x + 6) - 3$$

A. $(-\infty, a), a \in [4.1, 6.6]$

B. $(a, \infty), a \in [-6.2, -3.5]$

C. $[a, \infty), a \in [-4.3, 0]$

D. $(-\infty, a], a \in [0.5, 4.3]$

E. $(-\infty, \infty)$

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4. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x+8} - 4$$

A. $(-\infty, a), a \in [-4, 0]$

B. $(-\infty, a], a \in [-4, 0]$

C. $(a, \infty), a \in [1, 7]$

D. $[a, \infty), a \in [1, 7]$

E. $(-\infty, \infty)$

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5. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{3x+3} = 27^{2x-5}$$

A. $x \in [-20.9, -16.9]$

B. $x \in [4, 5.5]$

C. $x \in [-8.7, -7.2]$

D. $x \in [1.2, 2.7]$

E. There is no Real solution to the equation.

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6. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(-4x + 6) + 5 = 2$$

A. $x \in [0.4, 2.7]$

B. $x \in [-3.4, -1]$

C. $x \in [-21.7, -17.7]$

D. $x \in [-25.7, -20.6]$

E. There is no Real solution to the equation.

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7. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{5x+3} = 9^{4x-3}$$

A. $x \in [-11.42, -7.42]$

B. $x \in [6.09, 10.09]$

C. $x \in [-7, -3]$

D. $x \in [13.4, 18.4]$

E. There is no Real solution to the equation.

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8. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x-3) - 4$$

A. $[a, \infty), a \in [-4.02, -3.23]$

B. $(-\infty, a], a \in [3.65, 4.06]$

C. $(a, \infty), a \in [2.45, 3.87]$

D. $(-\infty, a), a \in [-3.14, -2.88]$

E. $(-\infty, \infty)$

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9. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_3(-4x+7) + 4 = 2$$

A. $x \in [0.56, 2.17]$

B. $x \in [-0.61, -0.3]$

C. $x \in [3.7, 4.81]$

D. $x \in [0.24, 0.81]$

E. There is no Real solution to the equation.

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10. Solve the equation for x and choose the interval that contains x (if it exists).

$$19 = \ln \sqrt[3]{\frac{13}{e^{7x}}}$$

A. $x \in [-1.63, 2.37]$

B. $x \in [-6.06, -3.06]$

C. $x \in [-9.78, -5.78]$

D. There is no Real solution to the equation.

E. None of the above.